NEW CALIFORNIA APHIDIDÆ

BY E. O. ESSIG

The Adenocaulon Aphid

Macrosiphum adenocaulonæ Essig, n. sp.

This large shining dark-red, greenish-maroon, or almost black aphid is singular in its habit of feeding on the glandular flower stems of *Adenocaulon bicolor* Hooker and assuming the grotesque attitude of clinging head down to the stems by means of the rostrum and forelegs and with the abdomen, and hind legs and middle legs suspended in air at a considerable angle to the plant. (See figure 1). The first specimens were discovered on plants growing in the redwood forest along the California State Redwood Highway near Pepperwood, Humboldt County, California, June 17, 1936 by one of my students Olive P. McGinnis. A large series of specimens were taken at this locality, but the species was not observed elsewhere in the county. On August 9, 11, 1935, I took a large series of adult apterous females on the same host plant growing on the floor of the yellow pine forest at Jack's Camp, Meadow Valley, Plumas County, California, at an elevation of about 4,000 feet.

Winged viviparous female. Shining maroon or reddish, often with a tinge of olive-green. The head, antennæ, thorax, apices of the femora and tibiæ, and the cornicles dusky to black; cauda concolorous with the body or somewhat paler. Spines rather conspicuous on the antennæ, legs, and cauda. Antennæ only slightly longer than the body; length of segments: I, 0.15 mm.; II, 0.07 mm.; III, 0.80 mm.; IV, 0.65 mm.; V, 0.55 mm.; VI, 0.95 mm. (base, 0.17 mm.; unguis, 0.78 mm.); total 3.17 mm. There is a wide variation in the total lengths of the antennæ in different individuals, but the comparative lengths of the various segments approximate the above measurements. Secondary circular sensoria occur only on III and vary from 20 to 36 for 36 antennæ examined: the average is about 26. The rostrum extends to the third coxæ and is characterized by having IV long and slender (0.17 mm.) and V very minute. Cornicles dusky, sub-cylindrical, tapering slightly apically, somewhat recurved, strongly imbricated, and reticulated throughout the apical third as illustrated; length 0.9 to 1 mm. Cauda long, slender, and with numerous hairs or spines; length 0.40 mm., or slightly less than half the length of the cornicles. Length of body, including cauda, 3 mm.; width 1.10 mm.; length of forewing 4 mm.

Apterous viviparous female. Shining reddish or olivaceous throughout with the head and antennæ dusky and the apices of the tibiæ, the tarsi, and cornicles dusky or black; the cauda frequently paler than the body. Lengths of the antennal segments: I, 0.15 mm.; II, 0.07 mm.; III, 0.82 mm.; IV, 0.59 mm.; V, 0.54 mm.; VI, 0.97 mm. (base, 0.18 mm.; unguis, 0.79 mm.); total 3.14 mm. The circular secondary sensoria are distributed over III, excepting the extreme base and the apical third, and vary in

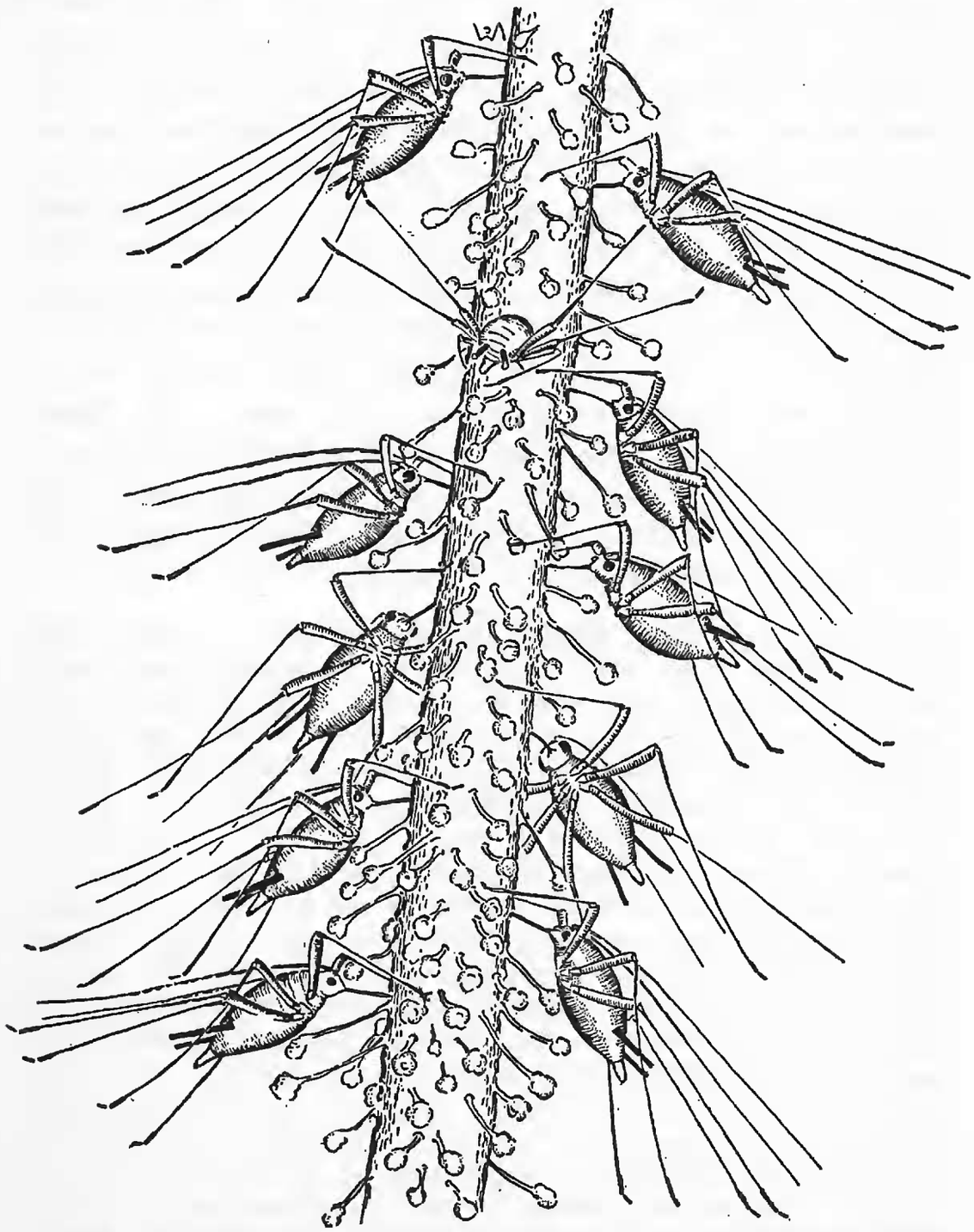

Fig. 1. *Macrosiphum adenocaulonæ* n. sp. feeding on the flower stem of *Adenocaulon bicolor* Hooker, showing characteristic attitude. (Drawing by Virginia McPheter.)

number from 11 to 18 with an average of 13. The cornicles are similar to those of the winged forms, but are larger and usually more recurved; length 1 mm. The length of the cauda is 0.47 mm.; length of the body, including the cauda, 3.8 mm., width 1.5 mm.

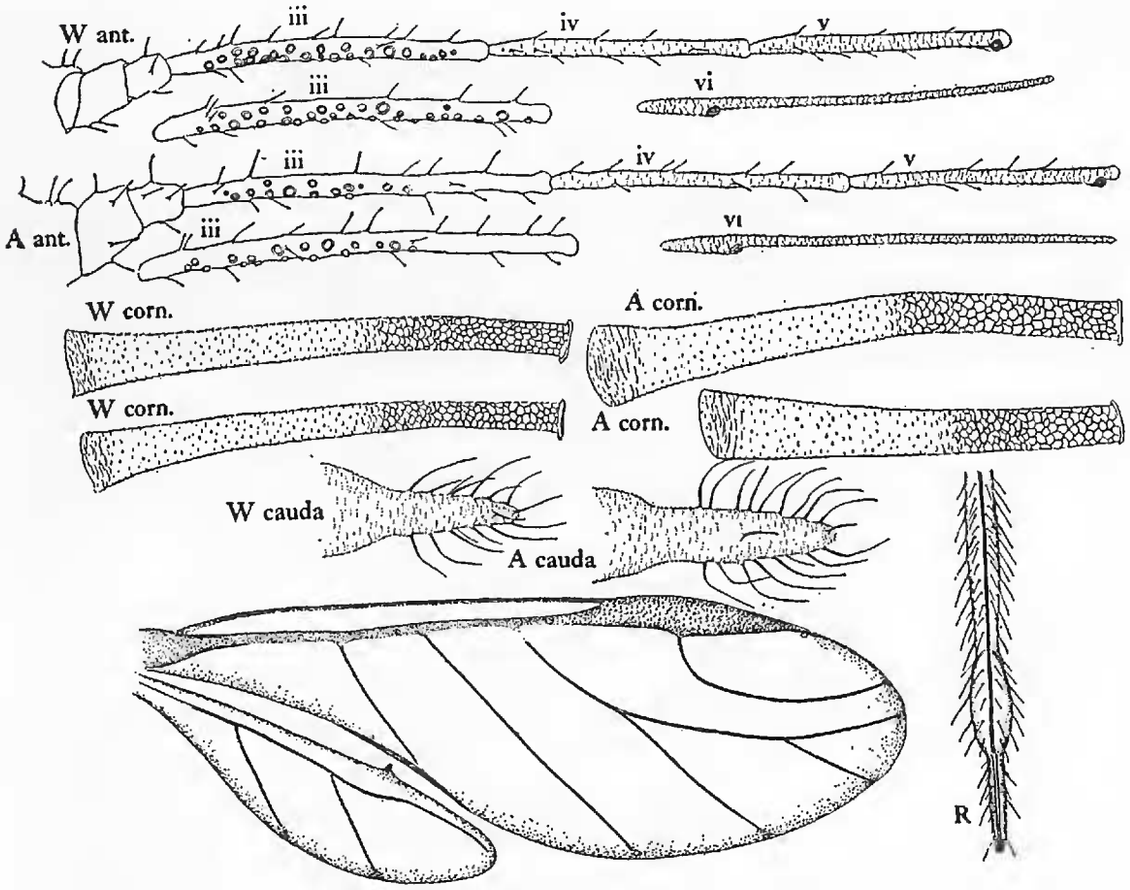

Fig. 2. *Macrosiphum adenocaulonæ* n. sp. Important anatomical parts all drawn to scale. A, apterous female; R, rostrum; W, winged female. (Drawings by Virginia McPheter.)

This species is closely related to *Macrosiphum longirostris* Gillette and Palmer and *M. rudbeckiæ* (Fitch). From the former it is distinguished by the paler color, fewer secondary sensoria on antennal segment III of both the alate and apterous forms, more and longer caudal spines, and by the wholly darker cornicles. From the latter it differs in having fewer secondary sensoria, narrower cornicles, much slenderer apical segments of the rostrum, and much less pigmentation of the appendages.

Although many other kinds of plants were growing in the immediate vicinity of those infested with *Macrosiphum adenocaulonæ* n. sp., the aphid appeared to restrict its feeding to *Adenocaulon bicolor* Hooker.

These descriptions have been drawn from a large series of alate and apterous specimens consisting of 23 slides from Humboldt County and 11 slides from Plumas County, California, all of which are designated as cotypes and are in the author's collection.

Macrosiphum scoliopi Essig, n. sp.

(Figure 3)

Winged viviparous female. White to very pale yellow with a considerable portion of the body marked dusky or black as follows: head and antennæ dusky; prothorax dusky with a black longitudinal vitta on each side; legs mostly dusky with the bases of the femora and tibiæ paler and the tarsi dusky to black; meso-

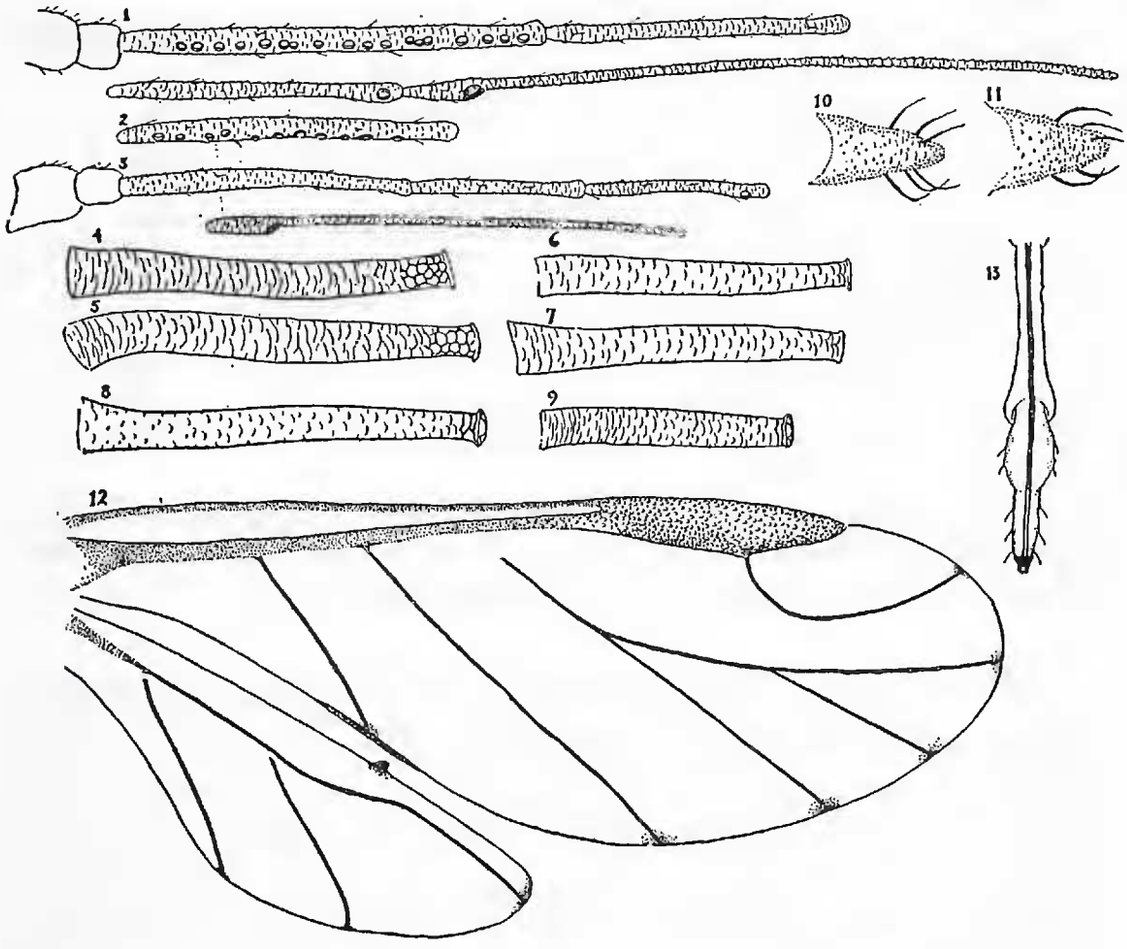

Fig. 3. *Macrosiphum scoliopi* Essig, n. sp. Winged viviparous female: 1, antenna; 2, antennal segment III; 4, and 5, cornicles; 10, cauda; 12, wings; 13, rostrum. Apterous female: 3, antenna; 6, and 7, cornicles; 11, cauda. 8, cornicle of winged form of *Macrosiphum aucubæ* Bartholomew, and 9, cornicle of winged form of *Myzus circumflexus* (Buckton), two similar species, shown for comparison. (Drawing by Virginia McPheter.)

and metathorax dusky; abdomen with a large indefinite median black dorsal patch and two rather narrow transverse black areas in front and one or two behind the median patch; cauda, anal plate, and cornicles dusky to black. On the vertex of the head is a pair of small, clear tubercles which resemble, in mounted specimens, very small ocelli. Frontal tubercles well-formed and almost perpendicular on the inner margins. Antennæ slightly longer than the body; the lengths of the segments as follows: I, 0.09 mm.; II, 0.06 mm.; III, 0.47 mm.; IV, 0.39 mm.; V, 0.34 mm.; VI, 0.97 mm. (base, 0.15 mm.; unguis, 0.82 mm.); total 2.32 mm. From 11 to 18, or an average of 14, circular secondary sensoria occur usually in a row throughout the length of III, excepting the extreme basal and apical areas. No secondary sensoria occur on other segments. Rostrum reaching to the second coxæ, length 0.65 mm. Wings with noticeably dark veins and stigma. Cornicles cylindrical with somewhat wider bases and slight constrictions throughout the apical fifth of each; the constricted areas being plainly reticulated, whereas the remaining portions are imbricated; length 0.55 mm. Cauda fairly slender and tapering, with six pairs of long hairs; length 0.2 mm. Length of body 2 mm.; width 0.9 mm., length of forewing 3.3 mm.

Apterous viviparous female. Pale-yellow or whitish throughout and robust; the epidermis finely wrinkled. Frontal tubercles prominent with numerous capitate hairs. Antennæ with tip of segment V and all of VI dark; length of segments: I, 0.10 mm.; II, 0.07 mm.; III, 0.40 mm.; IV, 0.31 mm.; V, 0.28 mm.; VI, 0.82 mm. (base, 0.13 mm.; unguis, 0.69 mm.); total 1.98 mm.; without secondary sensoria. Tarsi black. Cornicles somewhat more tapering than in the alate form, otherwise similar as to the apical constrictions and reticulations; length 0.58 mm. Cauda conical 0.17 mm. long. Length of body 2 mm., greatest width 1 mm.

Specimens of this aphid were first taken by the writer on the leaves of the showy lily, *Lilium speciosum* Thunb. *rubrum* Hort., at Oakland, California, July 25, 1916. Since they were confused with the common lily aphid, *Myzus circumflexus* (Buckton), only three alate and two apterous individuals were preserved on a single slide. The species was again collected by me on the undersides of the small native liliaceous plant, *Scoliopus bigelovii* Torrey, growing on the shady bank of Eel River at Fort Seward, Humboldt County, California, May 30 to June 5, 1935. Since the leaves of these plants were normally drying at this early season the aphid must have been migrating to other hosts, which were not discovered before leaving the locality on

June 23d, although a diligent search was made for additional host plants.

This new species was described from 7 alates and 28 apterous individuals mounted on 8 slides, which are designated as cotypes and are in the author's collection.

Macrosiphum scoliopi n. sp. is most likely to be confused with *Macrosiphum aucubæ* Bartholomew and *Myzus circumflexus* (Buckton), from which it is readily distinguished by the cornicles. See figure 3.

The Water Cress Aphid

Myzus langei Essig, n. sp.

(Figure 4)

The individuals are pinkish or green with dusky to black markings.

Winged viviparous female. Mostly black with variable amounts of pink or green background. The head, antennæ, tips of femora and tibiæ, tarsi, and thorax mostly black or dusky; the abdomen with lateral spots, dorsal markings and transverse dorsal areas, and a large median dorsal patch, black; cornicles, cauda, and anal plate black. Antennæ as long as or slightly longer than the body; lengths of segments: I, 0.08 mm.; II, 0.06 mm.; III, 0.43 mm.; IV, 0.27 mm.; V, 0.21 mm.; VI, 0.57 mm. (base, 0.12 mm.; unguis, 0.45 mm.); total 1.62 mm. Circular secondary sensoria rather large, distributed throughout III, excepting the extreme base; varying in number from 5 to 9 with an average of 7 for fourteen individual aphids. Rostrum pale, extending midway between the second and third coxæ. Cornicles cylindrical; straight or somewhat recurved; constricted near the apices to form conspicuous flanged openings; imbricated and without reticulations; length 0.38 mm. Cauda conical; with few rather inconspicuous hairs; 0.13 mm. long. Length of body 1.5 mm.; width 0.7 mm.; length of forewing 2.8 mm.

Apterous viviparous female. Robust with rather faint dark patches along the sides and on the dorsum behind the cornicles. Frontal tubercles gibbous and finely serrated. Antennæ shorter than the body; segments V and VI dusky; without secondary sensoria; length of segments: I, 0.08 mm.; II, 0.05 mm.; III, 0.25 mm.; IV, 0.17 mm.; V, 0.13 mm.; VI, 0.34 mm. (base, 0.08 mm.; unguis, 0.26 mm.); total 1.02 mm. Tarsi dusky. Rostrum pale, extending just beyond the second coxæ. Cornicles similar to those

[1] *Macrosiphum aucubæ* Bartholomew is apparently a synonym of *Myzus pseudosolani* (Theobald).

of the alate forms; dusky to black throughout the apical half or third; 0.42 mm. long. Cauda conical; black; 0.12 mm. long. Anal plate black. Length of body 1.7 mm.; width 1 mm.

This aphid appears to have no closely related species in this region. It somewhat resembles *Myzus leucorcrini* Gillette and Palmer, but lacks the clouded wing veins and the median constrictions of the cornicles of the latter.

Myzus langei n. sp. was taken on the undersides of the leaves of water cress, *Rorippa nasturtium-aquaticum* (Linn.) (*Radicula*), growing in the run-off of a small spring to the left of the foot of the Priest Grade, Big Oak Flat Highway, on the way to the Yosemite Valley, in the Sierra Foothills not far from Sonora, California, April 20, 1935, by one of my students, W. H.

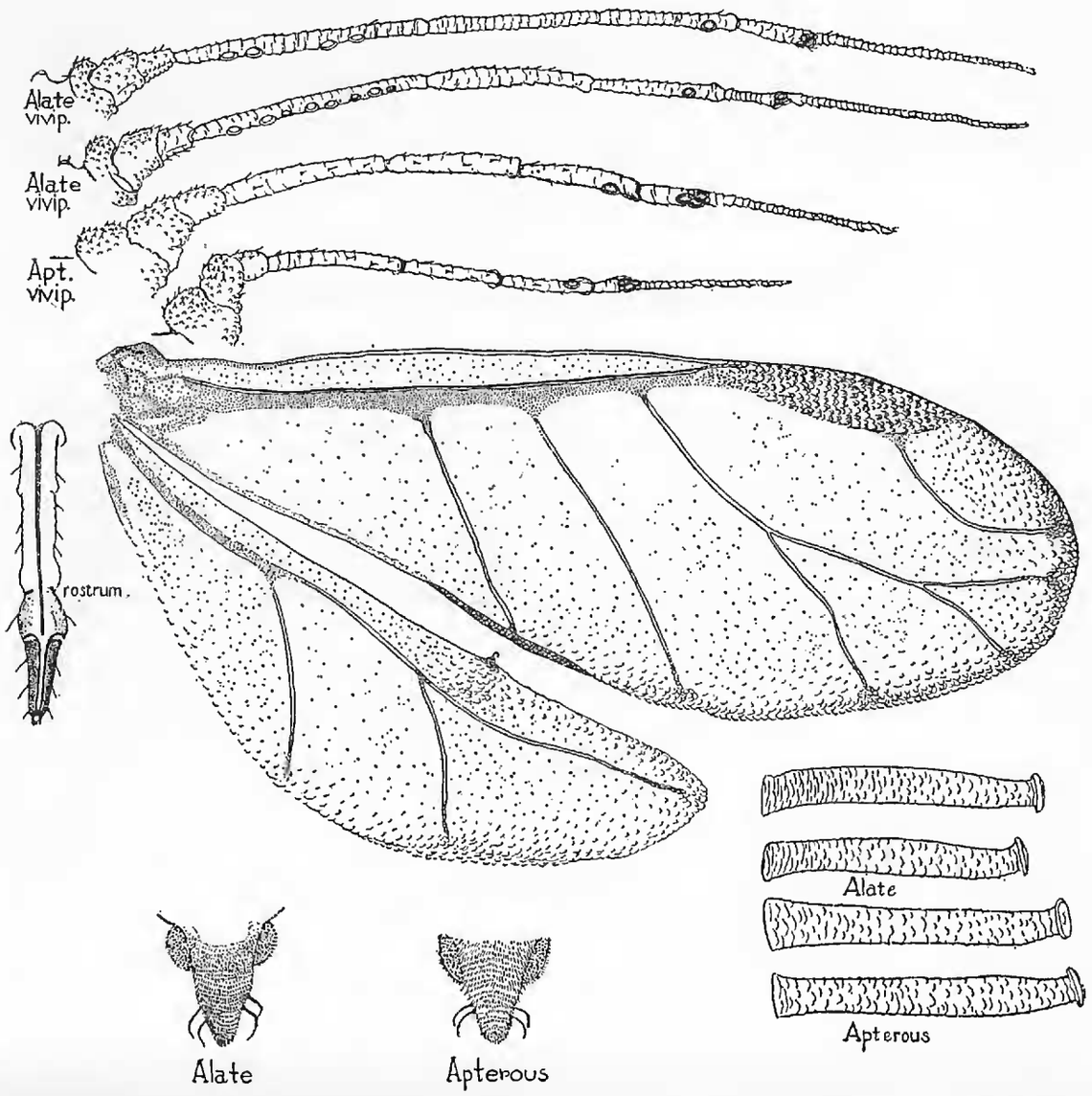

Fig. 4. *Myzus langei* n. sp. Various parts of alate and apterous females drawn to scale.

Lange, for whom it is named. Associated with it were a few specimens of *Rhopalosiphum nymphaeæ* (Linn.).

Described from 15 winged and as many apterous females designated as cotypes and mounted on five slides in the author's collection.

The Onion Aphid

Dr. R. Takahashi has called my attention to the fact that the onion aphid, *Micromyzus alliumcepa* Essig, described as a new species in the Pan-Pacific Entomologist XI; 157-160, 1935, is synonymous with his *Micromyzus formosanus*, described as *Fullawayella formosana* Takahashi in Aphididæ of Formosa, Pt. 1, p. 29, 1921 and again referred to in Pt. 2, p. 33, 89, 1923; Pt. 3, p. 107, 1924; Pt. 6, p. 75, 1931. I have examined specimens received from him and agree with his opinion.—E. O. Essig.

Future Address for Professor Essig

E. O. Essig, University of California, Berkeley, will be on sabbatical leave from July 1, 1936, to June 30, 1937. From July 1st to September 1st, 1936, and from March 1st to June 1st, 1937, his address will be Cambridge University, Cambridge, England. During the period from September 1, 1936, to March 1, 1937, his address will be the National Museum du Congo, Tervueren, Belgium.—E. O. Essig.